REMARKS

Status of Claims

Claims 1-3, 5-13, 15-23 and 25-29 are pending in this application, of which claims 1, 12 and 21 are independent.

Substance of Interview

Applicants thank the Examiner for his time and courtesy during an interview conducted with the Applicants' representative, Takashi Saito, on August 12, 2009. During the interview, the Applicants' representative argued that the cited reference JP '695 does not disclose the claimed crystals with random orientation. Further, the Applicants' representative argued that the purpose of JP '695 is to obtain polycrystalline diamond having a large size inexpensively and thus JP '695 teaches away from using a single crystalline diamond substrate.

Rejection under 35 U.S.C. § 103(a)

Claims 1, 12, 13 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent Application Publication JP H03-093695 (JP '695) in view of Japanese Patent Application Publication JP H03-075298 (Takahiro). Claims 2, 3, 5-11, 15-20, 22, 23 and 25-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '695 in view of Takahiro. These rejections are traversed for at least the following reasons.

(1) JP '695 fails to disclose a diamond polycrystalline film with random orientation

JP '695 fails to disclose a diamond polycrystalline film having crystals ***with random orientation*** as recited by independent claims 1, 12 and 21. Although JP '695 uses the term

"polycrystalline," the polycrystalline diamond film of JP '695 does not mean a diamond polycrystalline film having crystals ***with random orientation***. Rather, the polycrystalline diamond film of JP '695 is highly or strongly oriented, not randomly oriented as required by the claims.

In this regard, the Examiner asserts in the present Office Action that he does not see where in the reference the grown polycrystal is considered to be highly oriented. Applicants again respectfully submit that JP '695 states, at page 31, third full paragraph of the English Translation:

> That is, the present invention relates to a polycrystalline diamond wherein ***the strength of diffraction line of the (4,0,0) face is 20 or more*** when the strength of the diffraction line of the (1,1,1) face by X-ray diffraction is 100, and wherein ***the (4,0,0) face is aligned with the surface of the growth substrate***.(*emphasis added*).

Further, page 35, third full paragraph bridging to page 36 of the English Translation of JP '695 states:

> In a polycrystalline diamond of the present invention obtained by the method described above, ***the strength of diffraction line of (4,0,0) face is 20 or more*** when the strength of the diffraction line of the (1,1,1) face by X-ray diffraction is 100. Since according to ASTM X-ray diffraction data the diffraction strength of the (4,0,0) face of diamond powder in which the diamond drains have ***random orientation is*** *7* when the (1,0,0) is 100, a value of 20 and more ***indicates strong orientation***... (*emphasis added*).

Thus, it is clear that the polycrystalline diamond of JP '695 is not ***"randomly oriented"*** polycrystalline diamond. If the polycrystalline diamond of JP '695 were randomly oriented, the X-ray diffraction data would not show the strength of 20 or more as disclosed in JP '695, but would show the strength of about 7. The X-ray diffraction results clearly evidences that the polycrystalline diamond of JP '695 is not randomly oriented.

The Examiner further asserted during the interview that page 32, first full paragraph of English translation of JP '695 discloses that the diamond crystal grains having other orientations.

Applicants, however, submit that this paragraph merely discloses that there are other orientations, but does not disclose the grains of the polycrystalline diamond is ***randomly oriented***. However, having other orientations does not necessarily mean that such polycrystalline diamond has ***random orientations***. In this regard, Applicants respectfully submit that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the polycrystalline diamond of JP '695 is randomly oriented necessarily flows from the teachings of JP '695. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). The fact that a certain result or characteristic can or may be present in the prior art is not sufficient. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Furthermore, in JP '695, even if there were other orientations, the diamond which does not have (100) orientation would be removed to obtain a highly oriented polycrystalline diamond oriented to (100) (see, page 34, second full paragraph of the English Translation of JP '695).

In contrast, the polycrystalline film of claims 1, 12 and 21 has crystals (grains) ***with random orientation***. This means that the polycrystalline film of claims 1, 12 and 21 has a plurality of crystal grains with ***random*** orientations. By using the polycrystalline film having crystals with random orientation, it is possible to obtain a high toughness diamond composite substrate. *See*, paragraph [0039] of the present application.

As such, it is clear that, at a minimum, JP '695 fails to disclose a polycrystalline film having crystals ***with random orientation*** as recited by independent claims 1, 12 and 21. Since Takahiro is directed to a method of producing a single crystal diamond film on a single crystal diamond substrate, it is also clear that Takahiro fails to disclose a polycrystalline film having crystals with random orientation as recited by independent claims 1, 12 and 21.

For the foregoing reasons, the rejection does not present a *prima facie* case of

obviousness of claims 1, 12 and 21 over the combined teachings of JP '695 and Takahiro. Since claims 2, 3, 5-11, 13, 15-20, 22, 23 and 25-29 depend upon either one of claims 1, 12 and 21, these claims are also patentable over the cited references for at least the same reasons as claims 1, 12 and 21.

(2) Combining JP '695 with Takahiro is not obvious.

It would not have been obvious to combine JP '695 with Takahiro because there is no motivation or suggestion to do so. Combining JP '695 and Takahiro would impair the purposes of both JP '695 and Takahiro. More specifically, JP '695 teaches away from the use of single crystalline substrate as disclosed by Takahiro.

JP '695 is directed to a method of forming a polycrystalline diamond on the non-diamond substrate by vapor-phase synthesis in order to obtain high quality polycrystalline diamond having a large size at a low cost. JP '695, at page 31, first full paragraph of the English Translation, states:

> The present invention resolves these problems and provides a high quality polycrystalline diamond with excellent hardness, toughness, heat conductivity and ***light permeability***, along with a method for manufacturing it ***inexpensively*** by vapor-phase synthesis (*emphasis added*).

Thus, using a single crystalline diamond used in Takahiro, which is well-known as an expensive material, would impair the purpose of JP '695.

Further, JP '695 states, at page 30, first paragraph of the English Translation:

> Natural ***single-crystal diamonds*** and artificial ***single-crystal diamonds*** synthesized under high pressure are currently being used as heatsinks in laser diodes and other semiconductors that require special heat dissipation properties, but such ***single crystal diamonds are extremely difficult to manufacture for electronic components, which require areas of at least several square millimeters***, or ***optical components, which require transparency*** (*emphasis added*).

Therefore, JP '695 uses Si, Mo or SiC instead of a single crystalline diamond to obtain large size polycrystalline films. *See*, page 33, third full paragraph of the English Translation of JP '695.

As such, it is clear that ***JP '695 never intends to use a single crystal diamond substrate to form a polycrystalline diamond layer thereon*** because of the intended purpose and the above disclosed problems.

In this regard, the Examiner asserts that JP '695 discloses the use of a single crystalline substrate and does not state that it is impossible to use a single crystalline substrate. However, Applicants respectfully note that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) (see, M.P.E.P. 2141.02). As discussed above, the purpose of JP '695 is to obtain high quality polycrystalline diamond ***having a large area at a low cost***. *See*, page 40, third full paragraph of English translation of JP '695. Since it is clear that a single crystalline diamond substrate is small in size and expensive, using a single crystalline diamond substrate is clearly taught away in JP '695 or render JP '695 unsatisfactory for its intended purpose. It is also submitted that JP '695 never discloses or suggests that a single crystalline diamond substrate may be used as an alternative.

As such, it is clear that ***JP '695 teaches away from using a single crystalline diamond as the substrate*** in producing a polycrystalline diamond film. It is also clear that, since the purpose of Takahiro is to obtain single crystal diamond, the method of producing polycrystalline diamond of JP '695 would never be adopted in the technology of Takahiro.

Accordingly, it would not have been obvious to combine JP '695 with Takahiro because there is no motivation or suggestion to do so and JP '695 in fact teaches away to adopt the

teachings of Takahiro.

For the foregoing reasons, the rejection does not present a *prima facie* case of obviousness of claims 1, 12 and 21 over the combined teachings of JP '695 and Takahiro. Since claims 2, 3, 5-11, 13, 15-20, 22, 23 and 25-28 depend upon one of claims 1, 12 and 21, these claims are also patentable over the cited references for at least the same reasons as claims 1, 12 and 21.

Based on the foregoing, Applicants respectfully request that the Examiner withdraw the rejections of Claims 1-3, 5-13, 15-23 and 25-29 under 35 U.S.C. § 103(a).

CONCLUSION

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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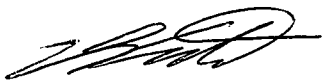

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